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EXAMINER

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ART UNIT

PAPER NUMBER

2834

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/364,256

Applicant(s)

SINES, EDDIE

Examiner

Guillermo Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanai (JP 402290138A) in view of Davis (U. S. Pat. No. 5,949,170).

Kanai discloses a method for cooling electrical devices having layers of electrically conductive material (10) wound onto a laminated core (2) comprised of the following steps:

placing one or more flat, thermally conductive strips (11) having a first and a second end, in contact with the heat generating component (10) across its entire length, and capable of conducting heat from between pre-selected layers of the electrically conductive material (10). Kanai discloses that the strip (11) extends through the layers of electrically conductive material (10) wound on the core (2) and the first and second end of the thermally conductive material (11) extending outside of the area covered by the electrically conducting material (10) and core (2). Kanai also discloses the conduction of heat from the first and second ends of the thermally conductive material (11) (see abstract).

However, Kanai does not disclose that the thermally conductive strips are of a non-metallic material. Kanai does not disclose placing one or more non-metallic strips in contact with the heat generating component.

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Davis discloses that the thermally conductive strips are of a non-metallic material (figure 6 and column 6, lines 34-38). Davis discloses placing one or more non-metallic, flat, thermally conductive strips for the purpose of improving thermal conductivity in the coils.

It would have been obvious at the time the invention was made to modify the method for cooling electrical devices of Kanai and provide it with the non-metallic strips of Davis for the purpose of improving thermal conductivity in the coils.

2. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanai in view of Davis, and further in view of Herron (U. S. Pat. No. 3, 671, 787).

Kanai and Davis disclose a method for cooling electrical devices as described on item 1 above. However, neither Kanai nor Davis disclose the steps of: placing a thermally conductive strip having a first and second end between predetermined laminations of the core. Neither Kanai nor Davis disclose that the first and second ends of the thermally conductive strip extend outside of the core.

Herron discloses placing a thermally conductive strip (12, 13) having a first and second end between predetermined laminations (11) of the core. Herron also discloses that the first and second ends of the thermally conductive strip (12) extend outside of the core. Herron's invention have the purpose of improving cooling efficiency in the dynamoelectric device.

It would have been obvious at the time the invention was made to modify the method for cooling electrical devices of Kanai and Davis and provide it with the cooling

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steps of disclosed by Herron for the purpose of improving cooling efficiency in the dynamoelectric device.

3. Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herron in view of G. A. Washburn (U. S. Pat. No. 422,863) and further of Kanai in view of Jarczynski (U. S. Pat. No. 5,091,666).

Herron discloses an electric motor (figure 1) comprising:

one or more laminations of a metallic material (11) forming an outer casing of the electric motor. Herron discloses one or more circular, flat, thermally conductive disks (12,13) placed between pre-selected layers of the motor laminations (11). Herron discloses that the conductive disks (12,13) conduct heat generated by an electrical current flowing within the motor to an edge of the conductive disk outside of the area covered by the motor laminations (11).

However, Herron does not disclose one or more circular non-metallic disks placed between pre-selected layers of the motor laminations. Herron does not disclose an electrically conductive material wound in a plurality of layers within the laminations so as to form an electric field that drives an armature when an electrical current is applied with thermally conductive strips placed between pre-selected layers of the electrically conductive material. Herron does not disclose that the thermally conductive strip extends outside of the area covered by the electrically conductive material. Herron does not disclose means for conducting heat at the end of the conductive disk and strips.

G. A. Washburn discloses one or more non-metallic, flat disks (figure 6 and lines 14-20) placed between pre-selected layers of the motor laminations (a) for the purpose of improving cooling performance in the stator structure.

Kanai discloses an electrically conductive material (10) wound in a plurality of layers within the laminations so as to form an electric field that drives an armature when an electrical current is applied with thermally conductive strips (11) placed between pre-selected layers of the electrically conductive material (10). Kanai discloses that the thermally conductive strip (11) extends outside of the area covered by the electrically conductive material (10). Kanai's invention have the purpose of dissipating heat from the coils created during operation.

Jarczynski discloses means (46, 26, 28) for conducting heat at the end of the conductive disk and strips (36). Jarczynski discloses one or more thermocoolers (26,28,46) adjacent to and touching the outer casing of the motor (24) to conduct heat from the metallic laminations (34) forming the outer casing of the motor. Jarczynski's invention have the purpose of removing heat created in the motor structure towards the atmosphere.

It would have been obvious at the time the invention was made to modify the electric motor of Herron and provide it with the non-metallic, flat disks of G. A. Washburn. It would have also been obvious to provide the electric motor of Herron with the thermally conductive strips disclosed by Kanai, and the means for conducting heat disclosed by Jarczynski for the purpose of improving cooling performance in the stator

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structure, dissipating heat from the coils, and removing heat created in the motor structure towards the atmosphere.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the thermally conductive strips in the stator core or in the windings of a non-metallic material since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Response to Arguments

Applicant's arguments filed January 26, 2001 have been fully considered but they are not persuasive. In response to the Applicant's argument that "the claimed device uses a completely different scientific method of removing heat from the internal structure of an electric motor" it has to be noted that the projections (13) of the nonmagnetic lamina (12) of Herron are used as air cooling fins for the motor and is mentioned as a further feature of the invention (column 2, lines 34-38). Also, Herron teaches that the nonmagnetic fins (13) are made of Aluminum which is an excellent heat conductor. Having the nonmagnetic laminas formed as disks (12 in figure 3) and made of Aluminum (column 3, lines 14-18) which is an excellent heat conductor, Herron reaches the stated purpose of providing the motor with cooling means. Those cooling means are thermally conductive disks in the invention by Herron.

In response to Applicant's argument that the primary use of the non-magnetic laminas of Herron is not to cool the motor assembly, the fact that Applicant uses the non-magnetic laminas for a different purpose does not alter the conclusion that its use

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in a prior art device would be *prima facie* obvious from the purpose disclosed in the reference." *In re Lintner*, 173 USPQ 560.

In response to Applicant's argument that neither Kanai, Herron, Davis nor Jarczynski include certain features of Applicant's invention, the limitations on which the Applicant relies (i.e., an insulator, a high modulus carbon fiber used to conduct heat out of the motor to the ambient, a material known as K1100) are not stated in the claims. It is the claims that define the claimed invention, and it is claims, not specifications that are anticipated or unpatentable. *Constant v. Advance Micro-devices Inc.*, 7 USPQ 2d 1064.

In response to Applicant's argument that "Davis had no intentions, nor did it teach, the use of the capacitive voltage distributors as a new method of heat transfer or a new method to cool the windings" it has to be noted that Applicant's claims are directed to the "placing of one or more non-metallic, flat, thermally conductive strips in contact with the heat generating component". The Examiner has addressed those limitations in the rejection of Kanai in view of Davis.

Kanai clearly teaches the use of a thermally conductive disk to improve heat dissipation in the winding, while Davis teaches the use of a thermally conductive, non-metallic material to "improve the thermal conductivity of the system" (column 6, lines 37-38). It is obvious to choose from the thermally conductive materials of Kanai and Davis to insert it between layers of the electrically conductive elements, as claimed. Davis is concerned with the thermal conductivity of the windings as recited in column 6, lines 37-38. This concern is shared by Kanai and Davis.

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Contrary to the Applicant's argument that "Kanai merely conducts the heat off the outside of the windings" it has to be noted that Kanai discloses on the purpose section of the abstract: "inserting or rolling in heat dissipation plates among conductors of which the field winding consists, and projecting a part of the heat dissipation plate from the outer peripheral surface of the field winding". This clearly shows the capacity of the embodiment by Kanai of dissipating heat from the inner portion of the coils since Aluminum is a good heat conductor.

The action mailed on October 26, 2001 was not a Final Action, thus the amendments and the Declaration submitted have been entered and considered by the Examiner.

The Examiner has considered the declaration submitted by C. Moss, but it does not place the application in condition for allowance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3432 for regular communications and (703) 305 3432 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Guillermo Perez
April 19, 2001



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